US009134099B2

(12) **United States Patent**
**Tseng**

(10) **Patent No.: US 9,134,099 B2**
(45) **Date of Patent: Sep. 15, 2015**

(54) **NET THROWING DEVICE**

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( * ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 46 days.

(21) Appl. No.: **14/108,253**

(22) Filed: **Dec. 16, 2013**

(65) **Prior Publication Data**

US 2015/0168107 A1 Jun. 18, 2015

(51) **Int. Cl.**
***F41H 13/00*** (2006.01)
***F41B 11/00*** (2013.01)

(52) **U.S. Cl.**
CPC ..... ***F41H 13/0006*** (2013.01); ***F41B 11/00*** (2013.01)

(58) **Field of Classification Search**
CPC ..... F42B 12/66; F42B 12/68; F41B 11/83; F41B 15/10; F41H 13/0006
USPC ..... 124/56, 59; 102/502, 501, 503, 504; 89/1.41, 1.34; 42/1.08, 106, 105; 86/50; 43/58
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

| | | | | |
|---|---|---|---|---|
| 4,559,737 | A * | 12/1985 | Washington | 43/59 |
| 4,912,869 | A * | 4/1990 | Govett | 42/105 |
| 5,326,101 | A * | 7/1994 | Fay | 463/47.4 |
| 5,460,155 | A * | 10/1995 | Hobbs, II | 124/56 |
| 5,898,125 | A * | 4/1999 | Mangolds et al. | 102/439 |
| 6,854,374 | B1 * | 2/2005 | Breazeale | 86/50 |
| 6,904,838 | B1 * | 6/2005 | Dindl | 89/1.1 |
| 7,305,981 | B1 * | 12/2007 | Lin | 124/59 |
| 7,398,617 | B2 * | 7/2008 | Mattox | 43/58 |
| 8,186,276 | B1 * | 5/2012 | Olden et al. | 102/504 |
| 8,857,305 | B1 * | 10/2014 | Tseng | 89/1.34 |
| 2002/0134365 | A1 * | 9/2002 | Gray | 124/56 |
| 2010/0132580 | A1 * | 6/2010 | Nazdratenko | 102/502 |
| 2012/0192707 | A1 * | 8/2012 | Rogers et al. | 89/36.08 |
| 2014/0331984 | A1 * | 11/2014 | Brahler et al. | 124/76 |

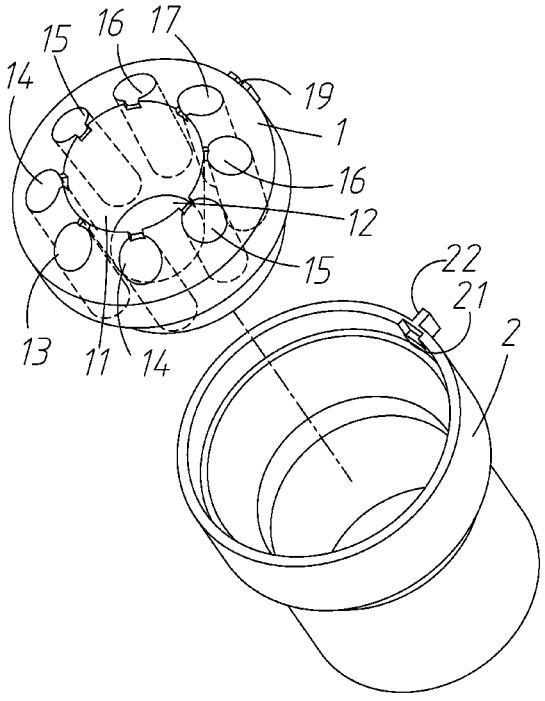
* cited by examiner

*Primary Examiner* — Samir Abdosh
*Assistant Examiner* — John D Cooper

(57) **ABSTRACT**

A net throwing device for use in combination with a compressed air powered launching device is provided with a pod including an axial space, tubes disposed around the axial space, and a slot formed on an edge; a net disposed in the axial space; weights each disposed in one of the tubes; and a casing including a forward oriented projection on an edge of a front end, the projection being fitted in the slot to secure the casing and the pod together, and a protrusion adjacent to the forward oriented projection. At least one of the tubes is inclined with respect to an axis of the axial space. At least one of the tubes is parallel to the axis of the axial space.

**4 Claims, 16 Drawing Sheets**



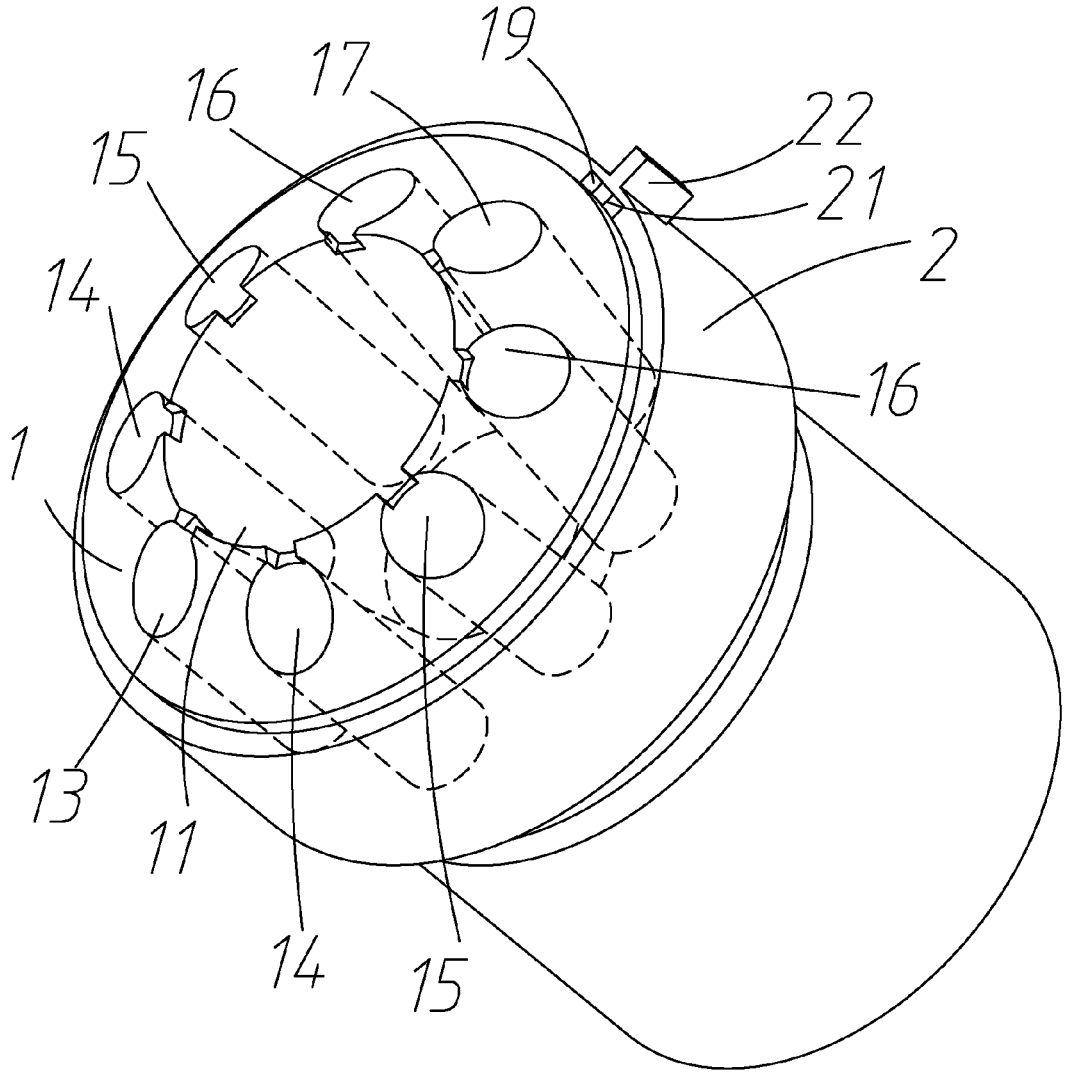



FIG. 1

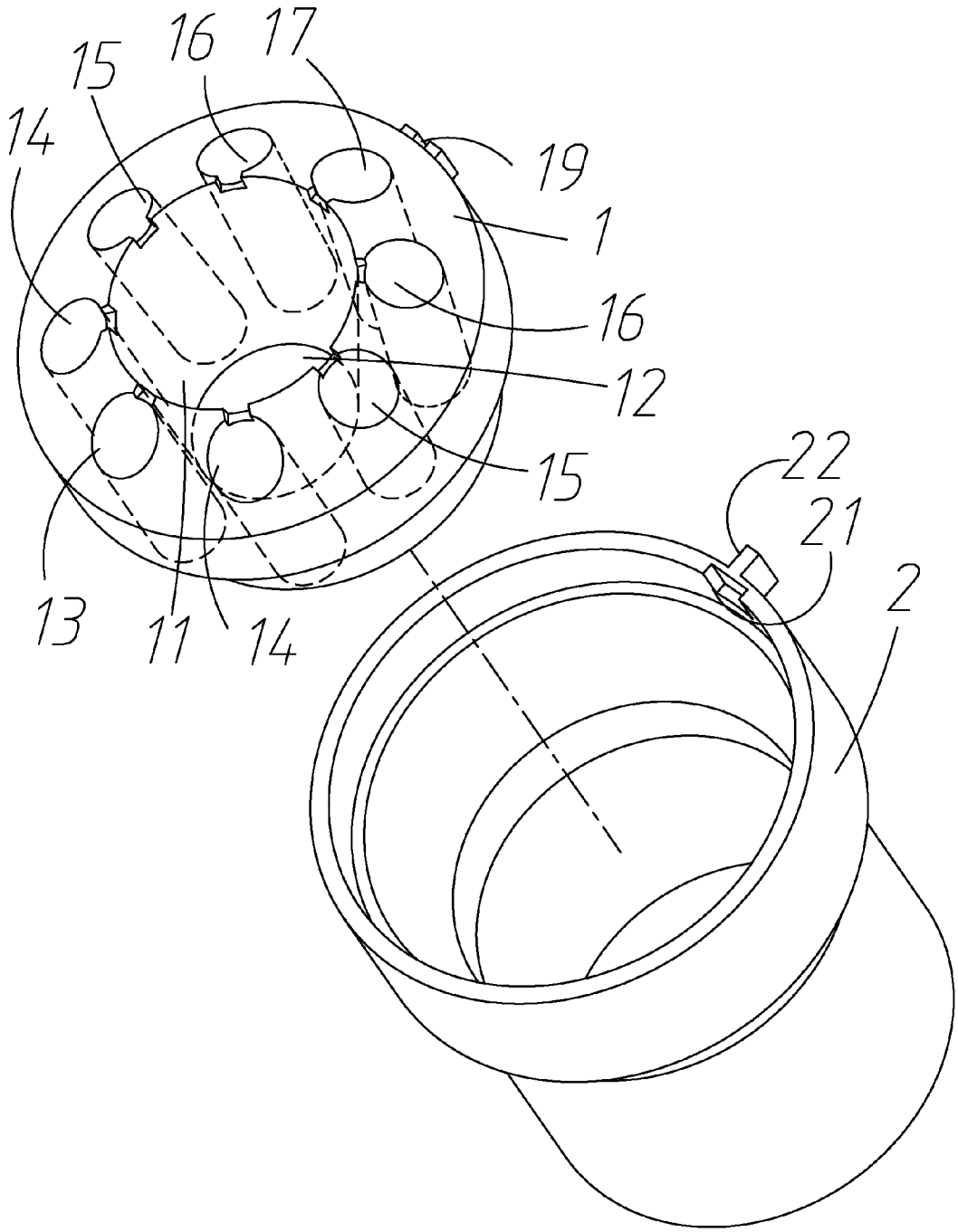



FIG. 2

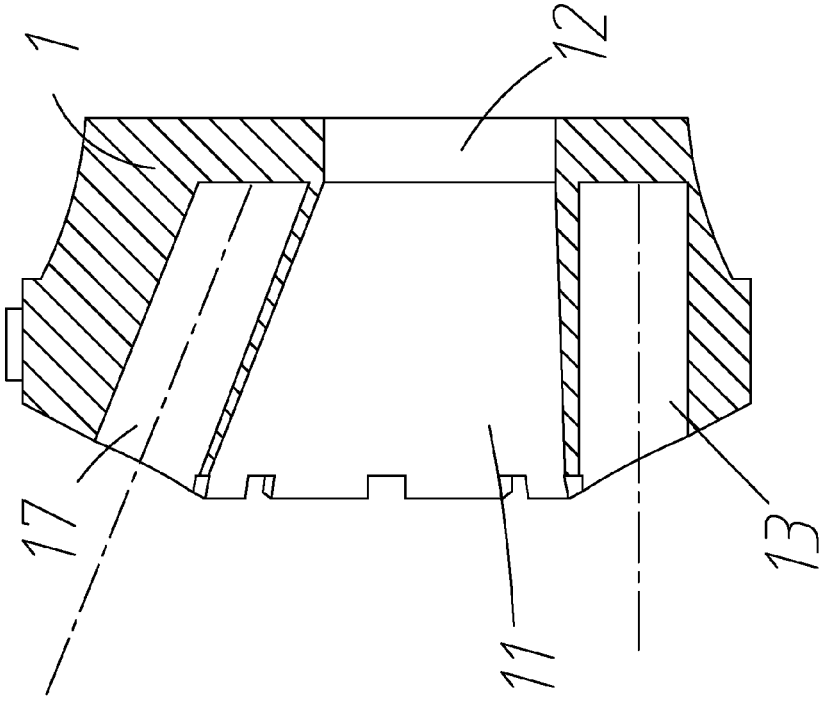



FIG. 4

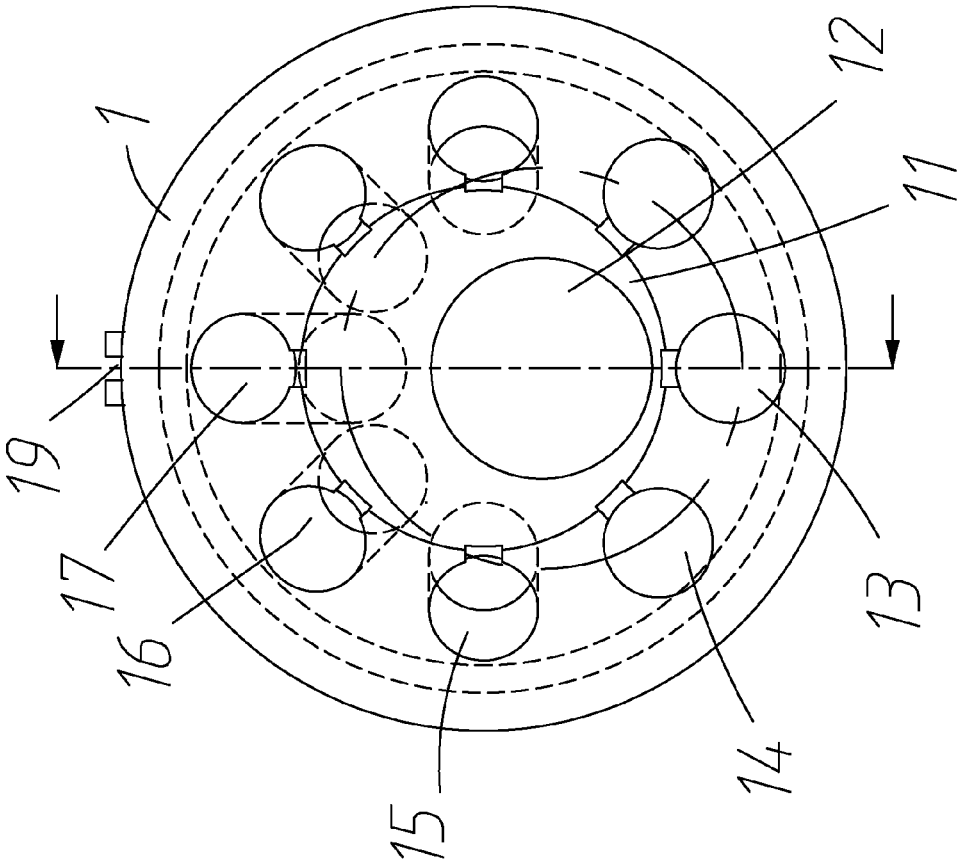



FIG. 3

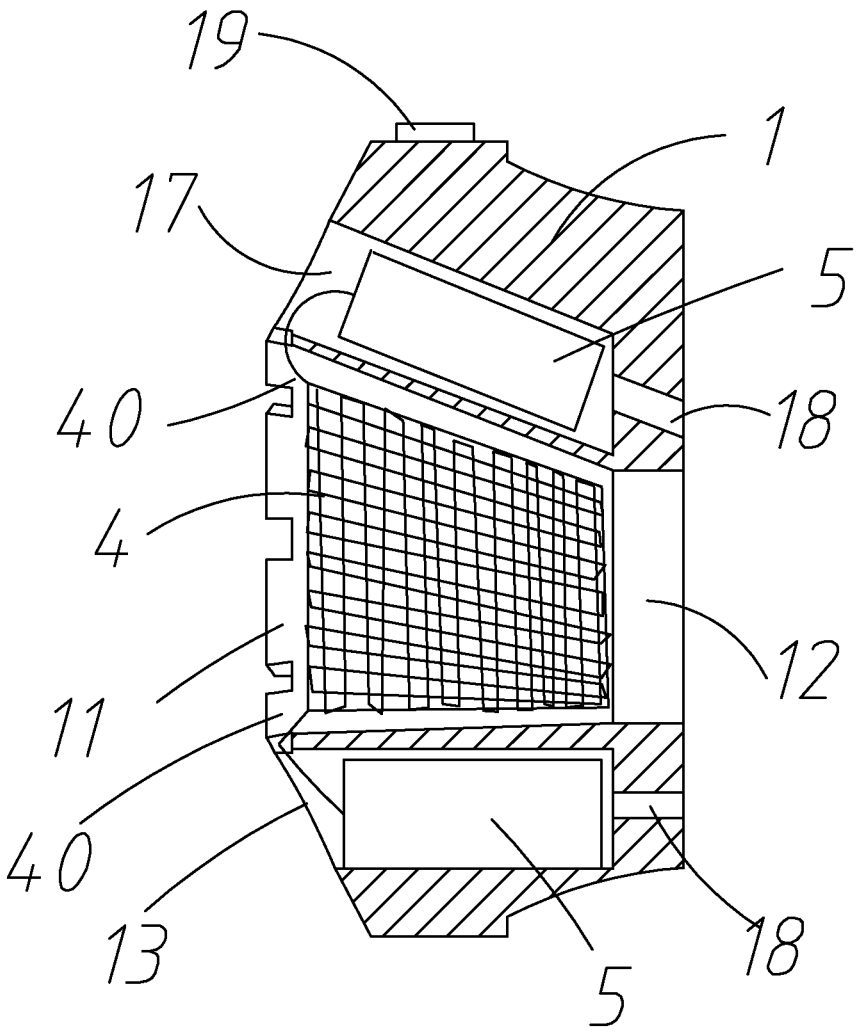



FIG. 4A

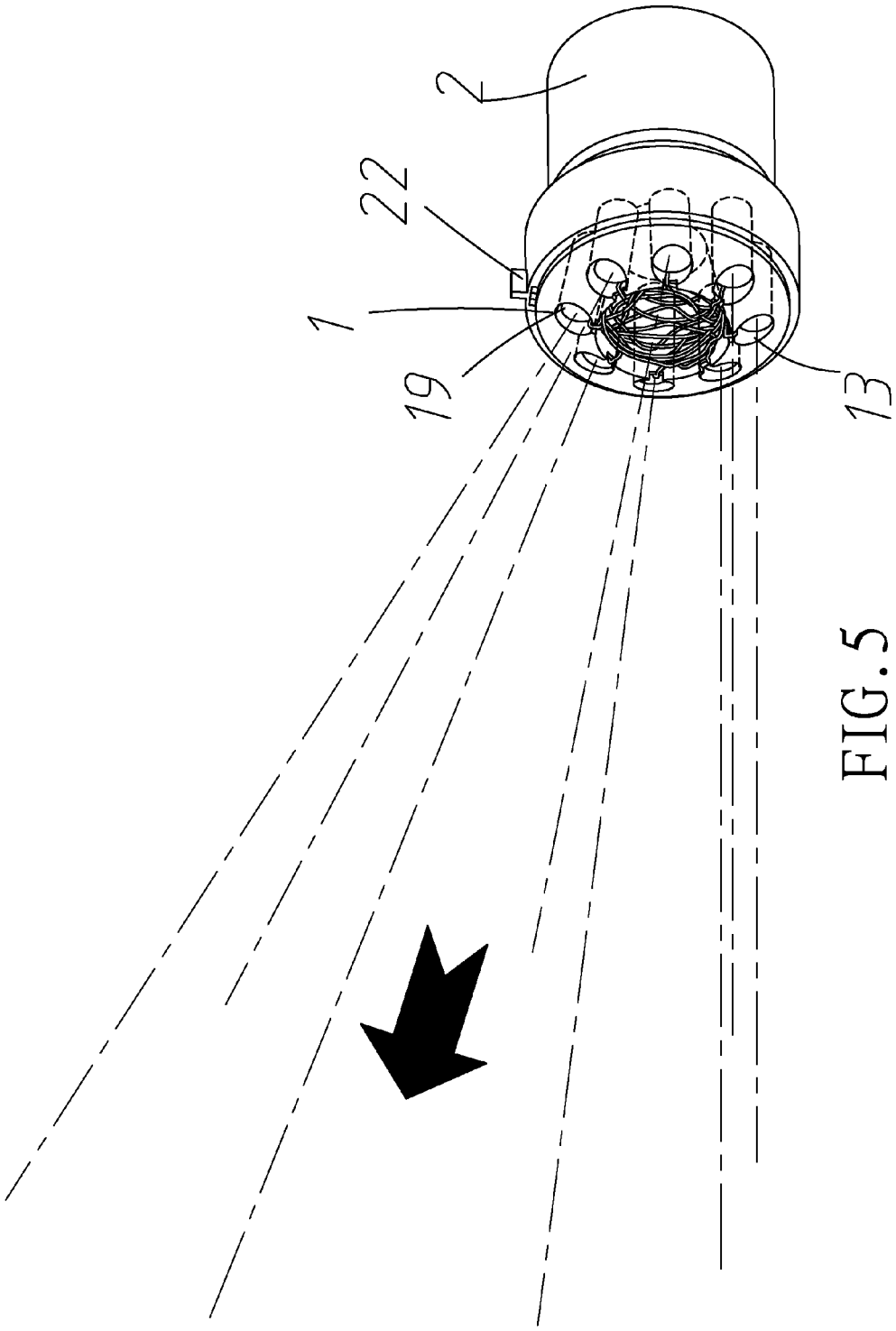



FIG. 5

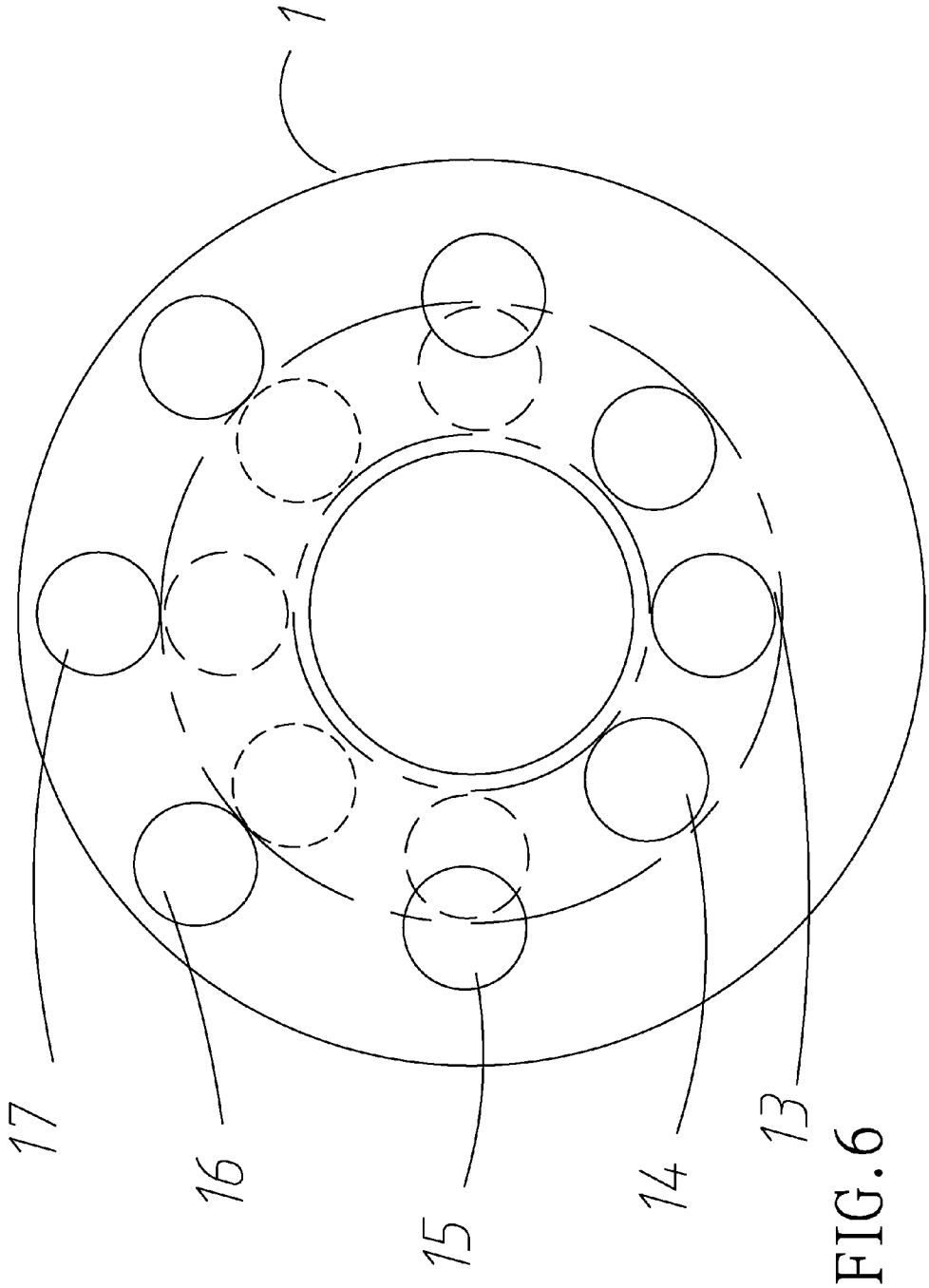



FIG. 6

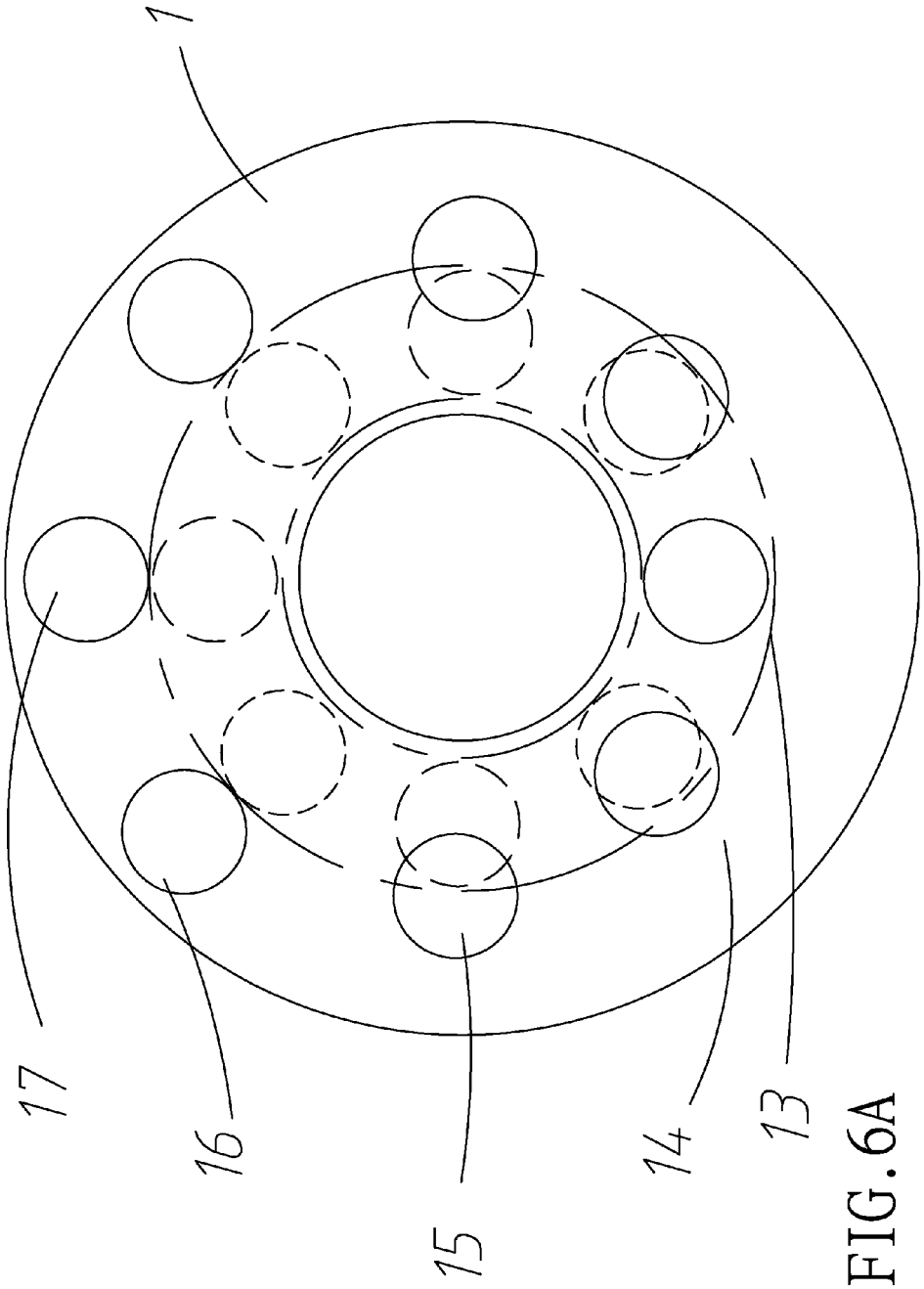



FIG. 6A

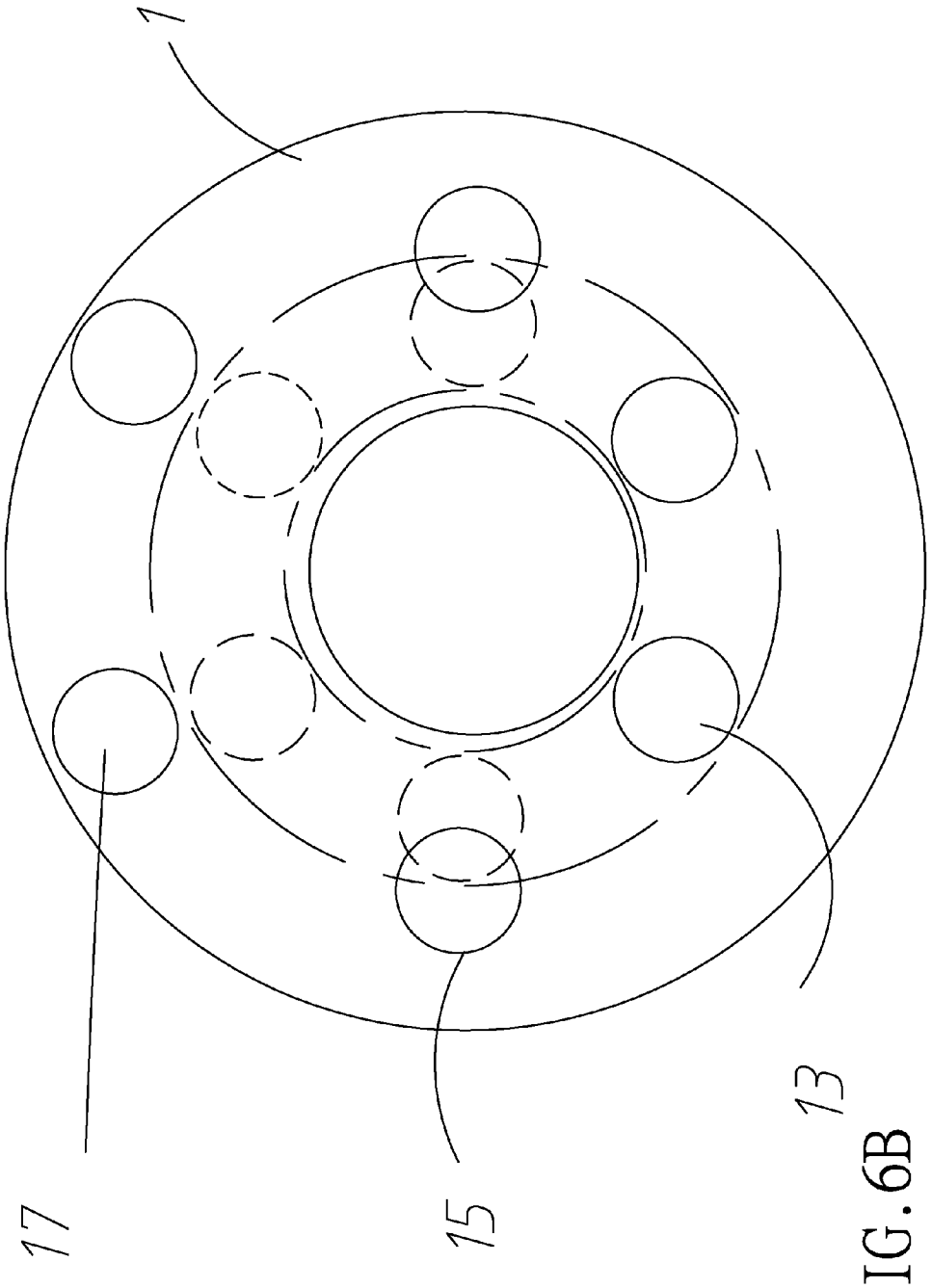



FIG. 6B

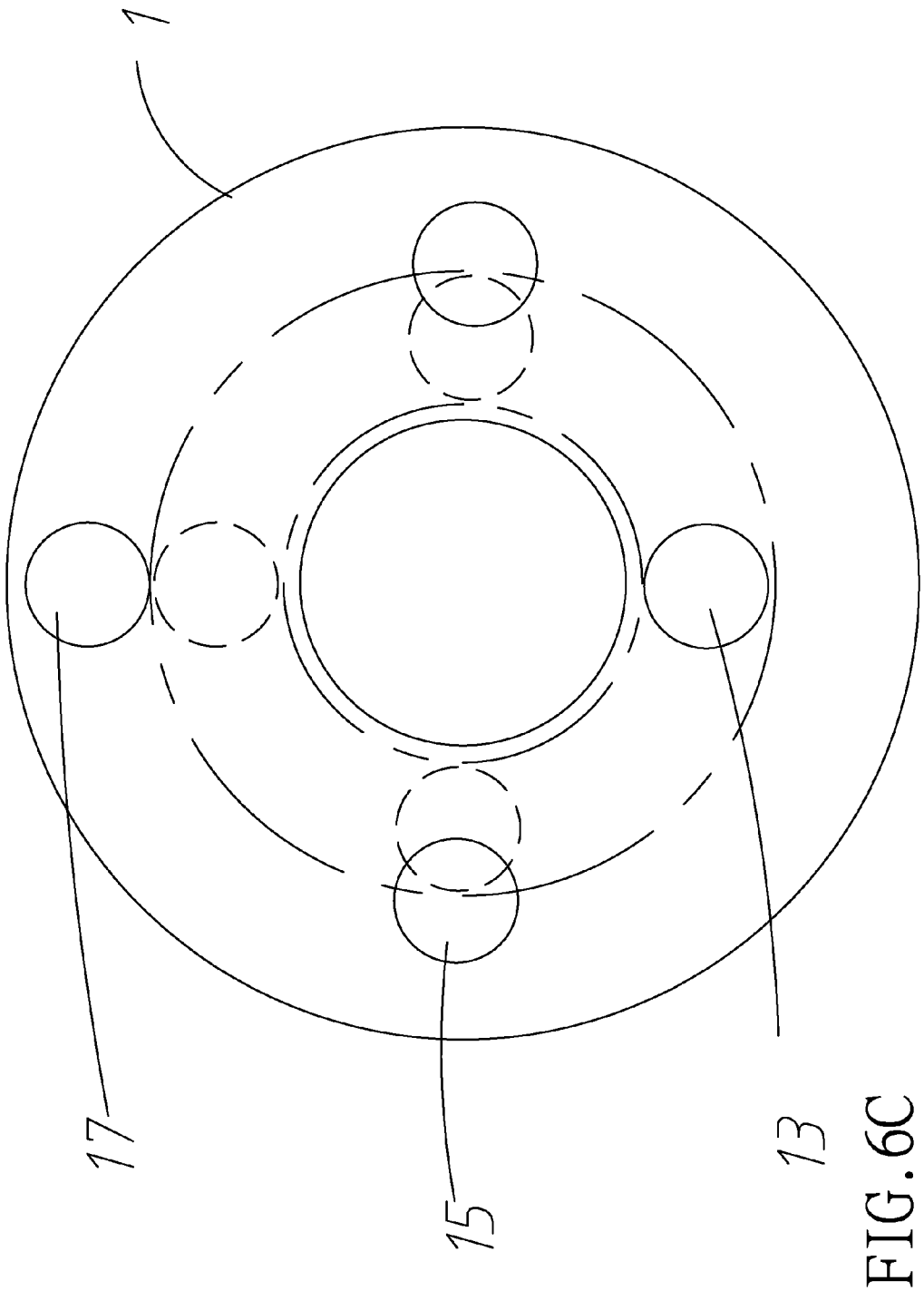



FIG. 6C

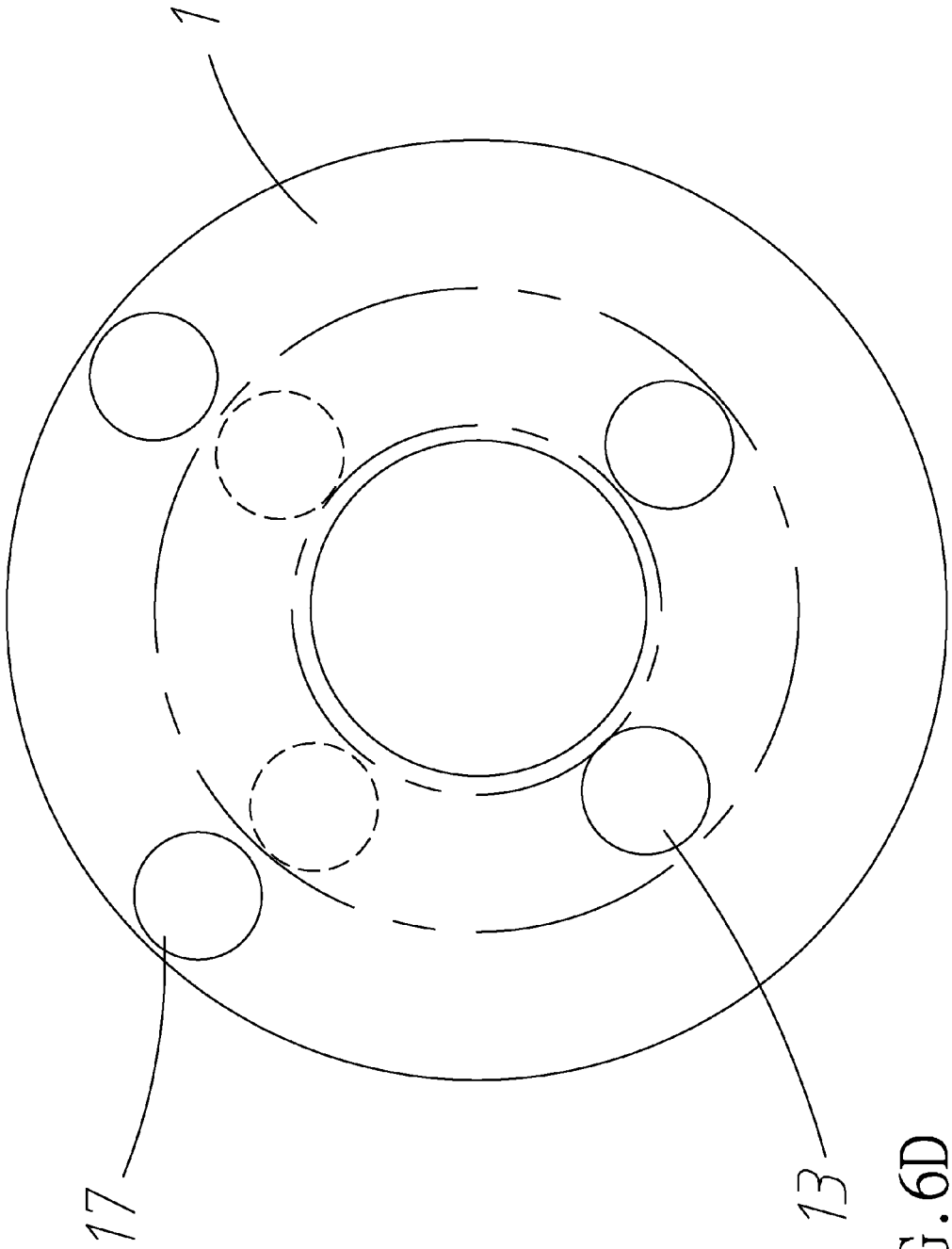



FIG. 6D

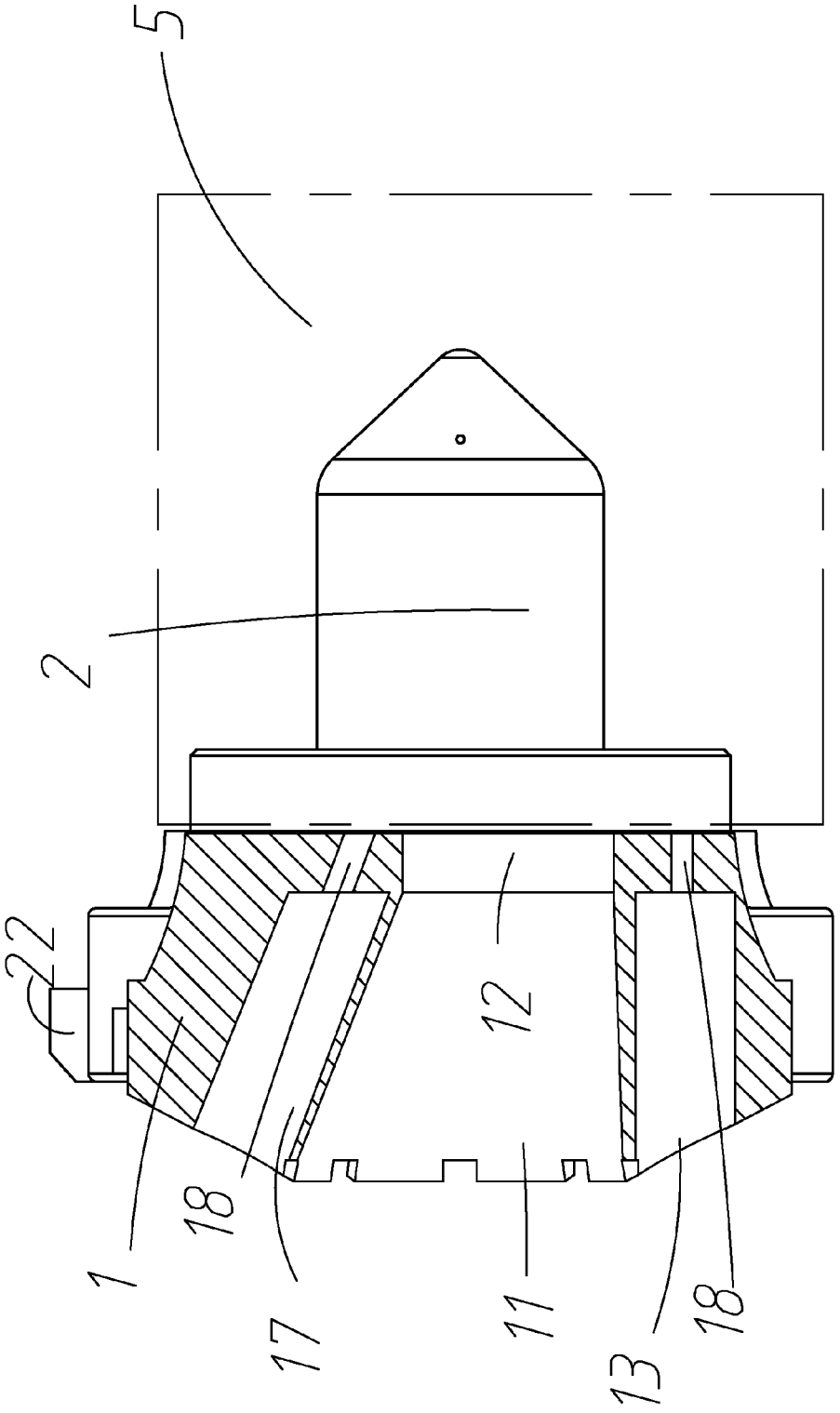



FIG. 7

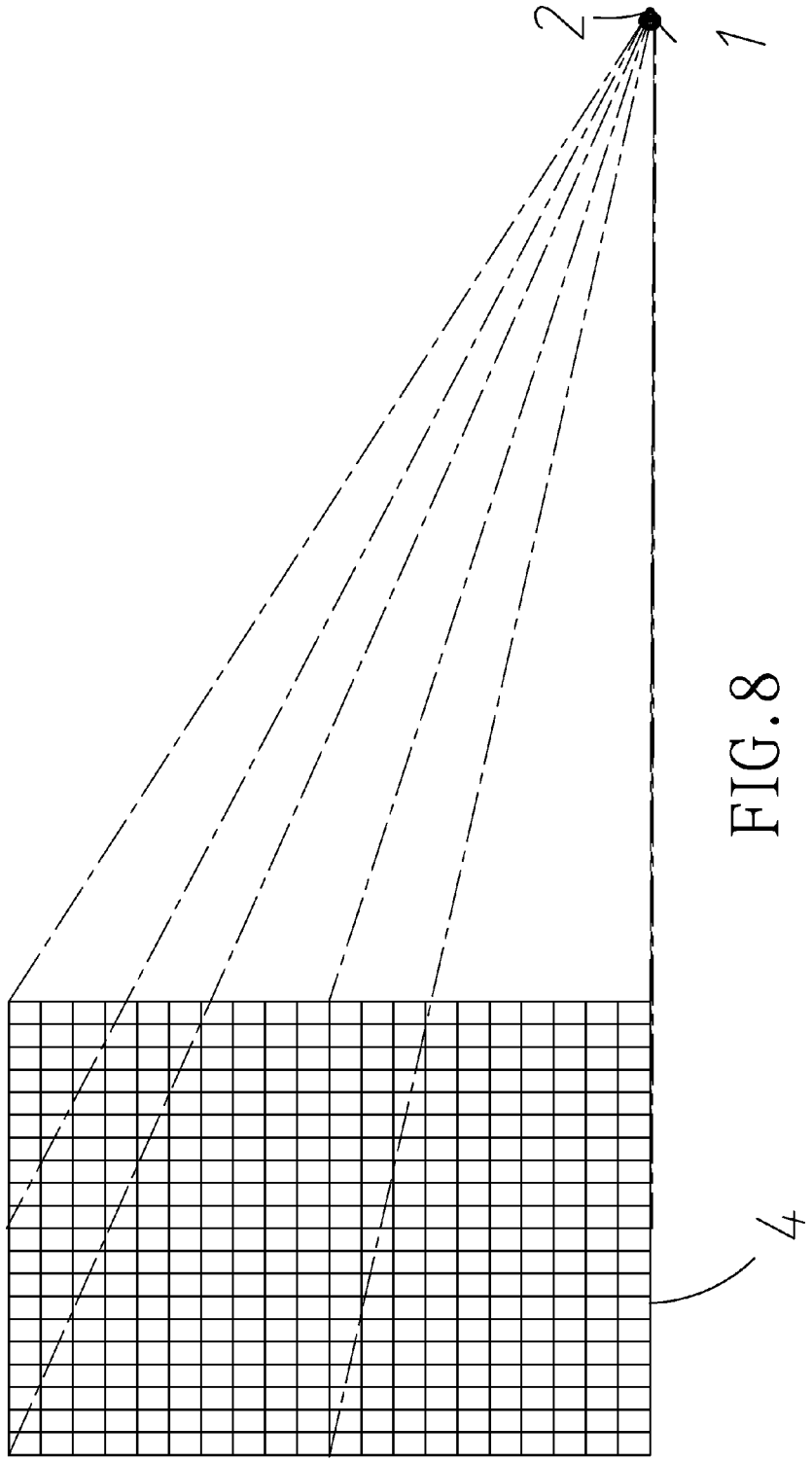



FIG. 8

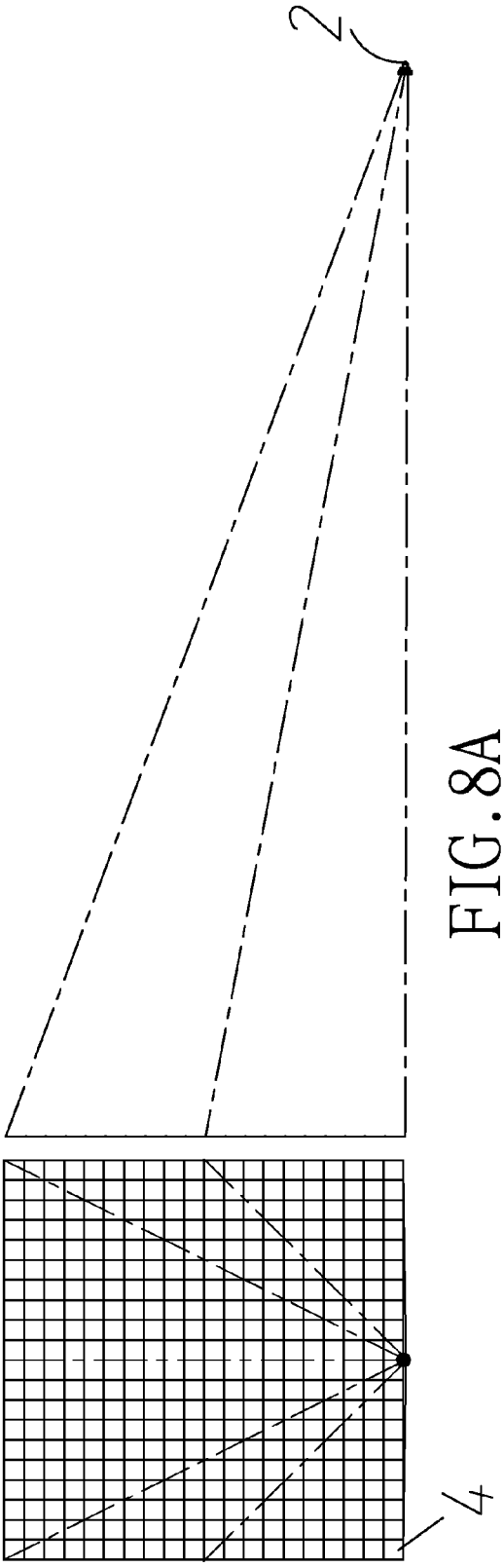



FIG. 8A

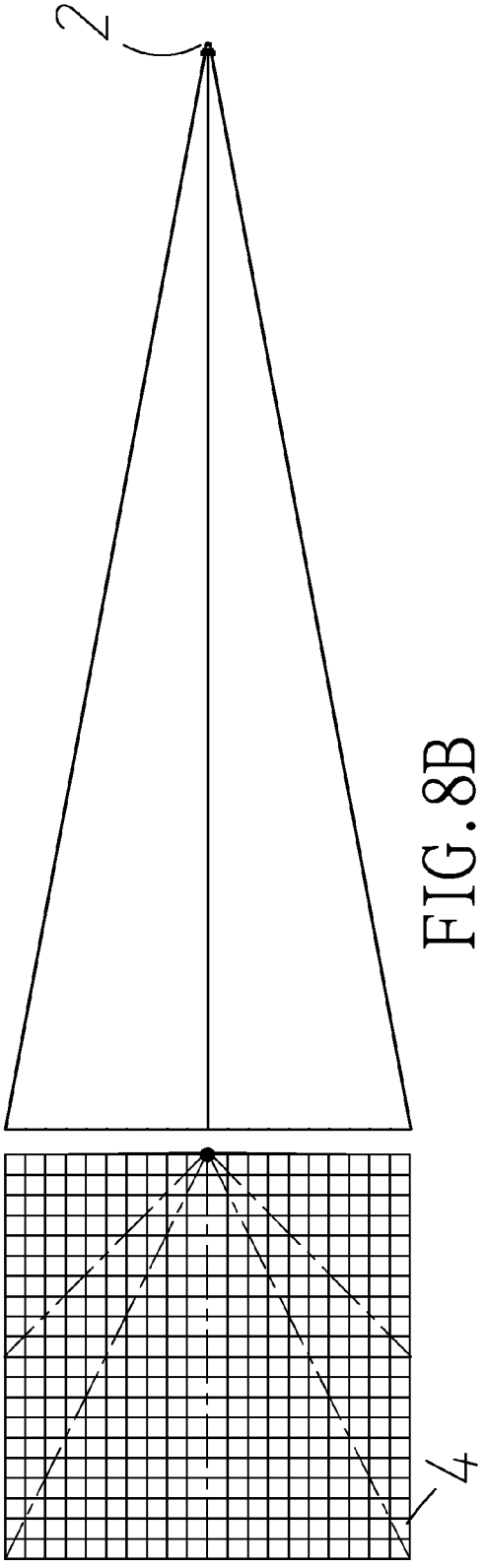



FIG. 8B

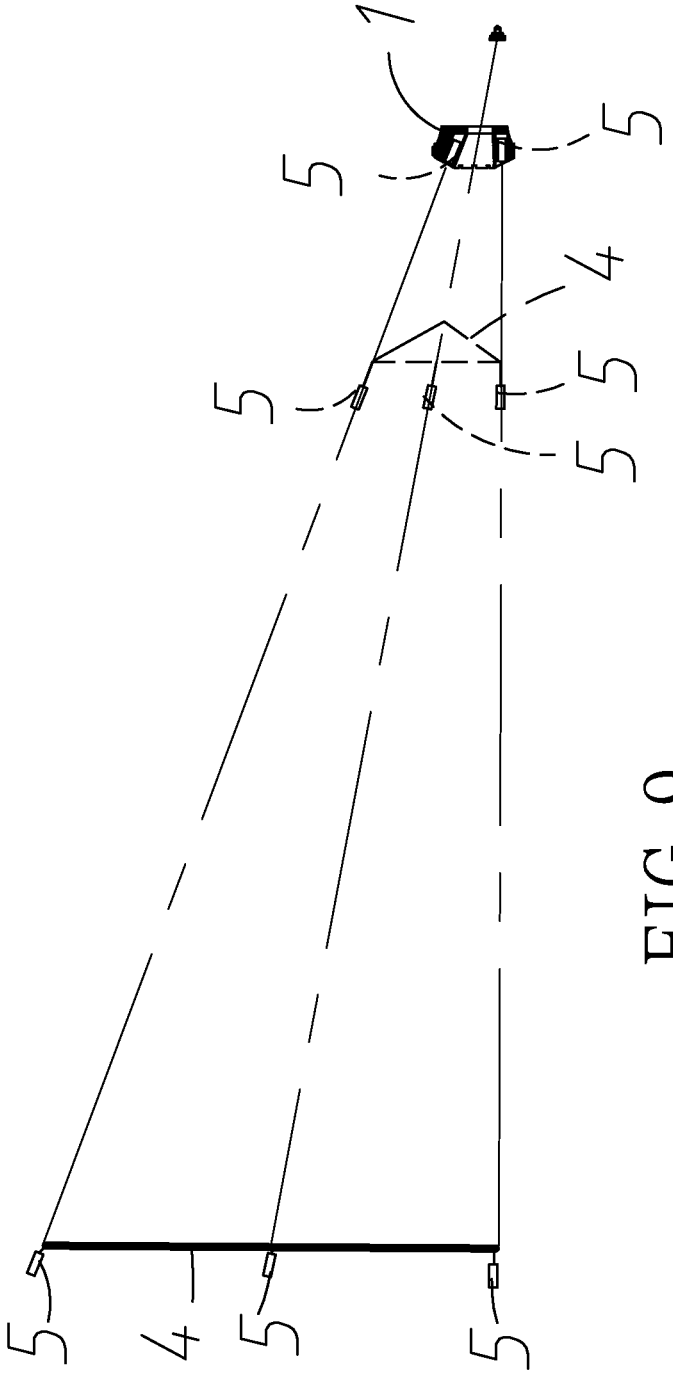



FIG. 9

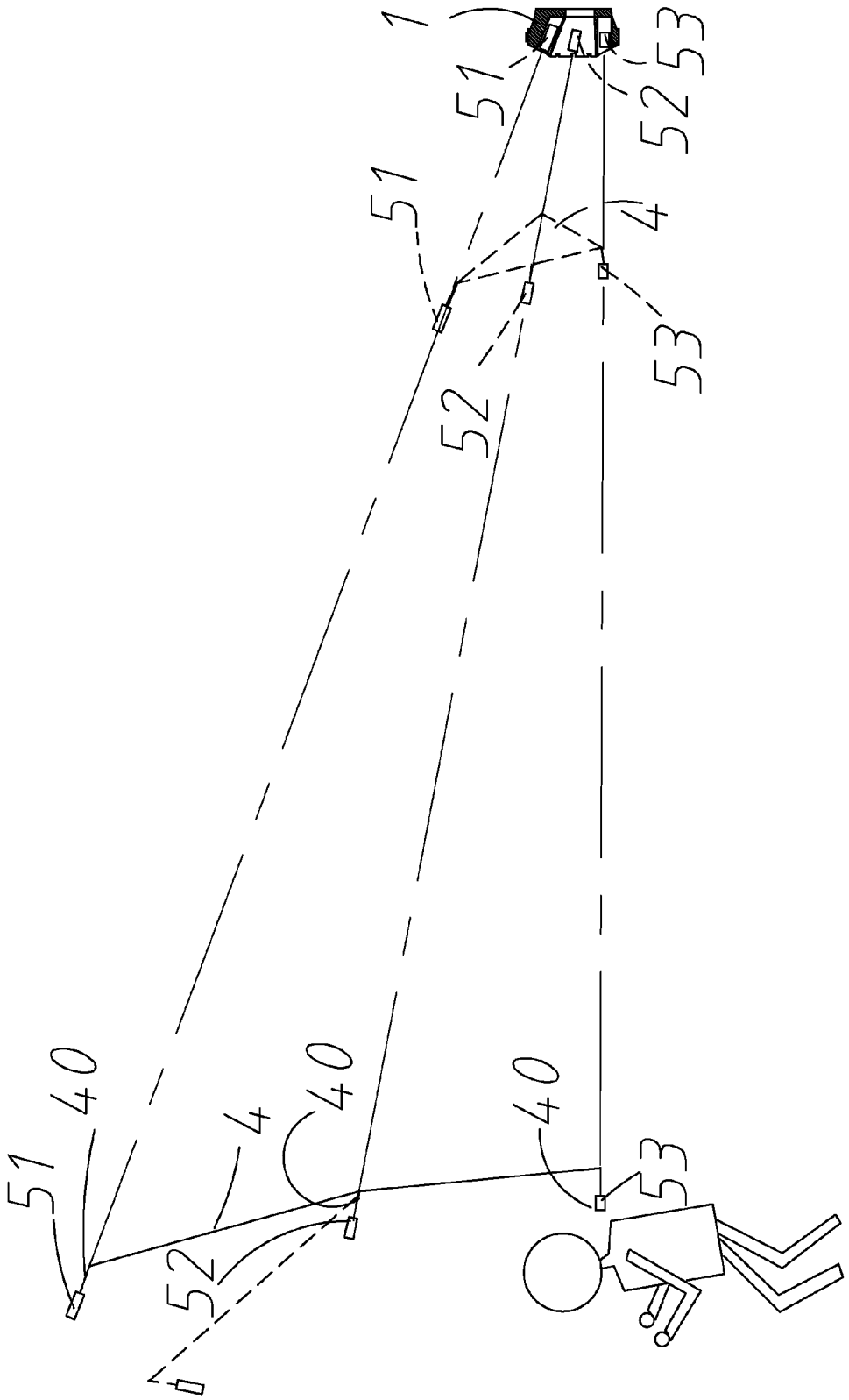



FIG. 9A

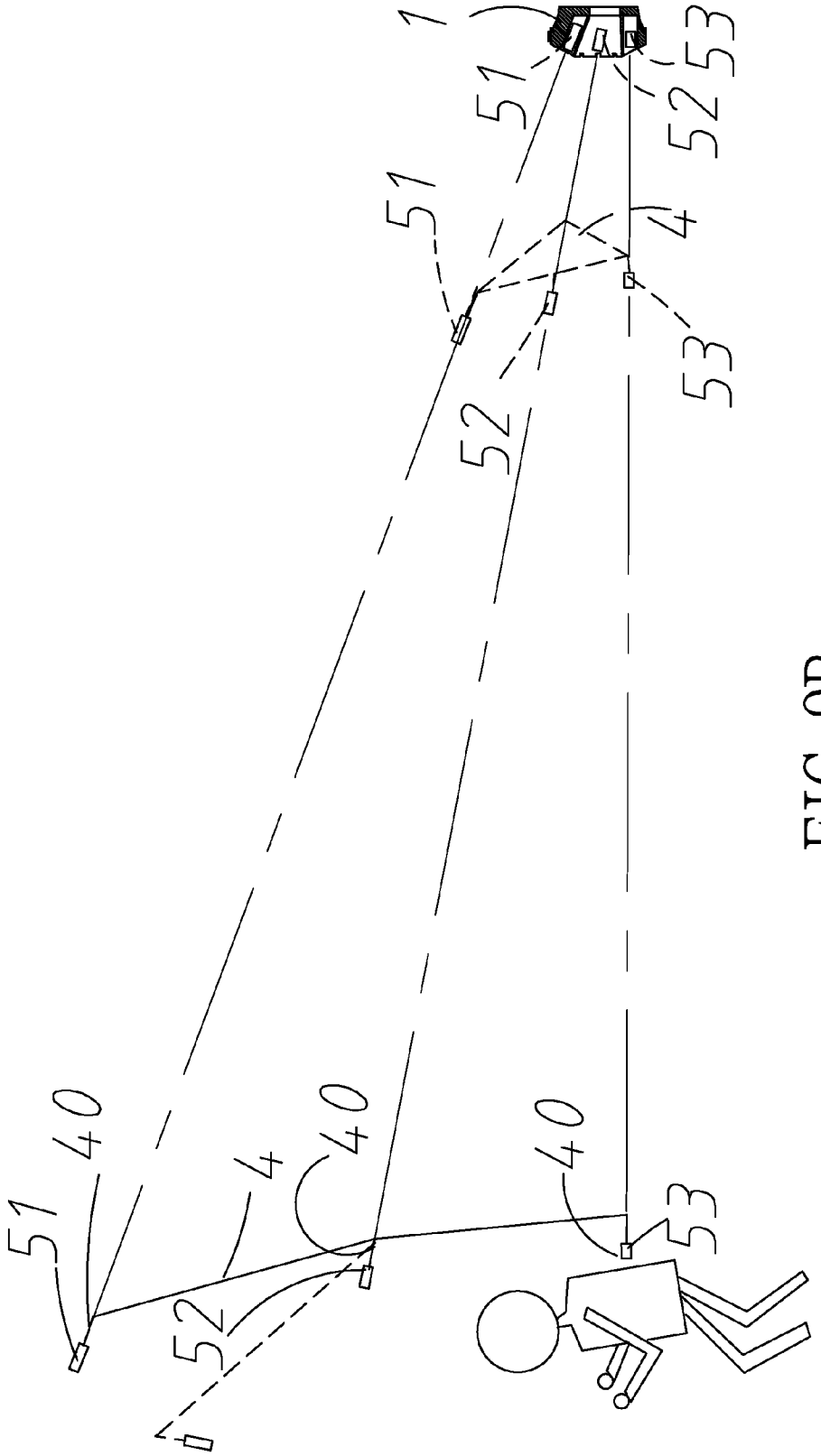



FIG. 9B

# NET THROWING DEVICE

## BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to riot control equipment and more particularly to a net throwing device.

2. Description of Related Art

Law enforcement officers have long used less lethal weapons (e.g., batons and whips) to disperse crowds and detain rioters. Since recent decades, riot control officers have also used tear gas, pepper spray, rubber bullets, and electric tasers.

There is a typical net gun utilizing a stock, an action member, a firing chamber, a manifold, and a plurality of barrels connected to the manifold is disclosed. Each barrel is configured to receive a projectile having an inner bore that is closely fitted over the external diameter of the barrel. Each barrel has a restrictor at the manifold end. Apertures are formed through the wall of the projectile adjacent to the barrel.

While it has some utility, improvements in these products are desired, and these improvements are provided by the invention.

## SUMMARY OF THE INVENTION

It is therefore one object of the invention to provide a net throwing device for use in combination with a compressed air powered launching device, comprising a pod comprising an axial space, a plurality of tubes disposed around the axial space, and a slot formed on an edge; a net disposed in the axial space; a plurality of weights each disposed in one of the tubes; and a casing comprising a forward oriented projection on an edge of a front end, the forward oriented projection being fitted in the slot to secure the casing and the pod together, and a protrusion adjacent to the forward oriented projection; wherein at least one of the tubes is inclined with respect to an axis of the axial space, and at least one of the tubes is parallel to the axis of the axial space.

The above and other objects, features and advantages of the invention will become apparent from the following detailed description taken with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a net throwing device according to the invention;

FIG. **2** is an exploded view of the net throwing device;

FIG. **3** is a front view of the pod of the net throwing device showing a first configuration of the pod;

FIG. **4** is a longitudinal sectional view of a pod of an another embodiment;

FIG. **4**A is a longitudinal sectional view of the pod of FIG. **3** with the net disposed in the space and the weights disposed in the tubes respectively;

FIG. **5** is a perspective view of the net throwing device with the net about to launch;

FIG. **6** is a front view showing a second configuration of the tubes;

FIG. **6**A is a front view showing a third configuration of the tubes;

FIG. **6**B is a front view showing a fourth configuration of the tubes;

FIG. **6**C is a front view showing a fifth configuration of the tubes;

FIG. **6**D is a front view showing a sixth configuration of the tubes;



FIG. **7** is a side elevation in part of longitudinal section of the net throwing device and the launching device assembled;

FIG. **8** is a side elevation showing the net projected out of the net throwing device;

FIG. **8**A is a front view of FIG. **8**;

FIG. **8**B is a top view of FIG. **8**;

FIG. **9** is a side elevation in part of longitudinal section showing the net projected out of the net throwing device;

FIG. **9**A is a view similar to FIG. **9** showing the net aiming at the shoulder of a person; and

FIG. **9**B is a view similar to FIG. **9** showing the net aiming at the lumbar region of the back of a person.

## DETAILED DESCRIPTION OF THE INVENTION

Referring to FIGS. **1** to **9**B, a net throwing device in accordance with the invention comprises the following components as discussed in detail below.

A pod **1** has a circular longitudinal section and comprises an axial space **11** having a widened mouth and adapted to receive a net **4**, a rear channel **12** communicating with the space **11**, a plurality of tubes **13**, **14**, **15**, **16** and **17** formed around the space **11** and each of the tubes **13**-**17** having a rear tunnel **18** communicating with itself, a plurality of weights **5** (e.g., weights **51**, **52** and **53**) each disposed in one of the tubes **13** to **17**, a plurality of ropes **40** each interconnecting the weight **5** and the net **4**, and a slot **19** on a circumferential edge.

Alternatively, the tunnels **18** are eliminated in another embodiment (see FIG. **4**).

As shown in a first configuration (see FIG. **3**), there are eight tubes in which the tubes **13**, **14** and **15** are horizontal but the tubes **15** are offset at an angle from an axial axis of the channel **12**, the tube **17** is inclined upward with respect to the tube **13**, and the two tubes **16** are also inclined upward with respect to the tube **13** but have an inclined angle less than that of the tube **17**.

As shown in a second configuration (see FIG. **6**A), it is similar to the first configuration but lengths of the tubes **16** and **17** are different from that shown in the first configuration.

As shown in a third configuration (see FIG. **6**A), it is similar to the first configuration in which the tube **13** is horizontal, the tubes **14** are inclined downward, the tubes **15** are horizontal and are offset at an angle from an axial axis of the channel **12**, the tube **17** is inclined upward with respect to the tube **13**, and the two tubes **16** are also inclined upward with respect to the tube **13** but have an inclined angle less than that of the tube **17**.

As shown in a fourth configuration (see FIG. **6**B), there are six tubes in which the tubes **13** and **14** are horizontal but the tubes **14** are offset at an angle from an axial axis of the channel **12**, and the tubes **17** are inclined upward with respect to the tubes **13**.

As shown in a fifth configuration (see FIG. **6**C), there four tubes in which the tube **13** is horizontal, the tubes **15** are horizontal and are offset at an angle from an axial axis of the channel **12**, and the tube **17** is inclined upward with respect to the tube **13**.

As shown in a sixth configuration (see FIG. **6**D), it is similar to the fifth configuration in which the tubes **13** are horizontal and the tubes **17** are inclined upward with respect to the tubes **13**.

A hollow, cylindrical casing **2** comprises a forward oriented projection **21** on a front edge and adapted to fit in the slot **19**, and an upward oriented protrusion **22** adjacent to the projection **21**. The pod **1** is mounted in a head of the casing **2** which is in turn mounted in a launching device **5** in a ready to launch position (see FIG. **7**). The launching device **5** can

release compressed air to flow through the casing **2**. And in turn, the compressed air flows to the channel **12** and the space **11**, and flows to the tunnels **18** and the tubes **13** to **17** respectively. Finally, the compressed air projects the net **4** and the weights **5** out of the net throwing device to entangle target(s) (see FIGS. **8**, **8**A and **8**B).

In operation, a law enforcement officer may fire the net throwing device from the shoulder (see FIG. **9**). Further, the aim of the projected net **4** is the shoulder of a person (see FIG. **9**A).

Alternatively, the law enforcement officer may fire the net throwing device from the lumbar region (see FIG. **9**B). Further, the aim of the projected net **4** is the lumbar region of a person.

While the invention has been described in terms of preferred embodiments, those skilled in the art will recognize that the invention can be practiced with modifications within the spirit and scope of the appended claims.

What is claimed is:

**1**. A net throwing device comprising:

a pod, comprising an axial space with a shape of a frustum of an oblique cone, a plurality of tubes disposed around the axial space, and a slot formed on an edge;

a net disposed in the axial space;

a plurality of weights, separately disposed in the tubes, and a rope being connected between the net and each of the weights; and

a casing, comprising a forward oriented projection on an edge of a front end, the forward oriented projection being fitted in the slot to secure the casing and the pod together, and a protrusion adjacent to the forward oriented projection;

wherein the casing communicates with the axial space.

**2**. The net throwing device of claim **1**, wherein the casing further communicates with the tubes.

**3**. The net throwing device of claim **1**, wherein the casing does not communicate with the tubes.

**4**. The net throwing device of claim **1**, wherein any two of the weights are different in weight.

* * * * *